

CLAIMS

What is claimed is:

1. A method for improving intracellular administration of a therapeutic agent comprising:
contacting cells with a compound comprising a charged derivative of a therapeutic agent having a therapeutic activity, the charged derivative being conjugated to a protein having a biological activity of being transported across a cell membrane into a cell; and
having the cell transport the compound into the cell where the cell metabolizes at least a portion of the compound to form a charged metabolite product that possesses the therapeutic activity of the therapeutic agent, the charged metabolite product being less prone to being transported across the cell membrane out of the cell relative to the compound and less prone to being transported across the cell membrane out of the cell relative to the therapeutic agent.
2. A method according to claim 1 wherein the charged derivative of the therapeutic agent is a quaternary alkyl amine.
3. A method according to claim 1 wherein the therapeutic agent is propoxycaine and the charged derivative of the therapeutic agent is a quaternary alkyl amine of propoxycaine.
4. A method according to claim 1 wherein the therapeutic agent is propoxycaine and the charged derivative of the therapeutic agent is a quaternary alkyl amine of etorphine.

5. A method according to claim 1 wherein the protein is selected from the group consisting of a nucleic acid sequence, a peptide, a peptidomimetic, an antibody and an antibody fragment.
6. A method according to claim 1 wherein protein is selected from the group consisting of nerve growth factors and analogs, derivatives and fragments of nerve growth factors.
7. A method according to claim 1 wherein the protein is selected from the group consisting of antibodies and antibody fragments that selectively bind to nerve cell surface receptors.
8. A method according to claim 1 wherein the protein is a DNA or RNA ligand that functions as an antagonist of nerve growth factors or inhibits binding of other growth factors to nerve cell surface receptors.
9. A method according to claim 1 wherein the protein is a synthetic peptide that binds to nerve cell surface receptors and has agonist or antagonist activity of nerve growth factors.
10. A method according to claim 1 wherein the protein is selected from the group consisting of anti-human trkA monoclonal antibody 5C3 and anti-human p75 monoclonal antibody MC192.
11. A method according to claim 1 wherein the protein is selected from the group consisting of NGF, BDNF, NT-3, NT-4, and NT-6.
12. A method according to claim 1 wherein the protein is selected from the group consisting of NGF, a fragment or derivative of NGF, a protein capable of competing with NGF for binding to a NGF receptor, BDNF, a fragment or derivative of BDNF, and a protein capable of competing with BDNF for binding to a BDNF receptor.

a charged derivative of a therapeutic agent having a therapeutic activity, the charged derivative being conjugated to a protein having a biological activity of being transported across a cell membrane into a cell, the cell metabolizing at least a portion of the compound to form a charged metabolite product that possesses the therapeutic activity of the therapeutic agent, the charged metabolite product being less prone to being transported across the cell membrane out of the cell relative to the compound and less prone to being transported across the cell membrane out of the cell relative to the therapeutic agent.

14. A compound according to claim 13 wherein the charged derivative of the therapeutic agent is a quaternary alkyl amine.

15. A compound according to claim 13 wherein the therapeutic agent is propoxycaïne and the charged derivative of the therapeutic agent is a quaternary alkyl amine of propoxycaïne.

16. A compound according to claim 13 wherein the therapeutic agent is propoxycaïne and the charged derivative of the therapeutic agent is a quaternary alkyl amine of etorphine.

17. A compound according to claim 13 wherein the protein is selected from the group consisting of a nucleic acid sequence, a peptide, a peptidomimetic, an antibody and an antibody fragment.

18. A compound according to claim 13 wherein protein is selected from the group consisting of nerve growth factors and analogs, derivatives and fragments of nerve growth factors.

19. A compound according to claim 13 wherein the protein is selected from the group consisting of antibodies and antibody fragments that selectively bind to nerve cell surface receptors.
20. A compound according to claim 13 wherein the protein is a DNA or RNA ligand that functions as an antagonist of nerve growth factors or inhibits binding of other growth factors to nerve cell surface receptors.
21. A compound according to claim 13 wherein the protein is a synthetic peptide that binds to nerve cell surface receptors and has agonist or antagonist activity of nerve growth factors.
22. A compound according to claim 13 wherein the protein is selected from the group consisting of anti-human trkA monoclonal antibody 5C3 and anti-human p75 monoclonal antibody MC192.
23. A compound according to claim 13 wherein the protein is selected from the group consisting of NGF, BDNF, NT-3, NT-4, and NT-6.
24. A compound according to claim 13 wherein the protein is selected from the group consisting of NGF, a fragment or derivative of NGF, a protein capable of competing with NGF for binding to a NGF receptor, BDNF, a fragment or derivative of BDNF, and a protein capable of competing with BDNF for binding to a BDNF receptor.

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